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10/581,607	07/14/2006	Leif Westin	61192	5461

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EXAMINER	
VELASQUEZ, VANESSA T	
ART UNIT	PAPER NUMBER
1793	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,607	WESTIN, LEIF	
	Examiner	Art Unit	
	Vanessa Velasquez	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-21* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *June 5, 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-21 are pending and presented for examination.

Priority

1. Acknowledgment is made of Applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy of Application No. 0303289-3, filed in Sweden, has been placed of record in the file.

Information Disclosure Statement

2. One (1) information disclosure statement (IDS) was submitted on June 5, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

3. Claim 2 is objected to because the amount of residual austenite is not labeled with units. The Examiner will interpret the units to be percent by volume for the purposes of applying prior art. Appropriate correction is required.

4. Claim 9 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Specifically, Claim 9 depends on any one of Claims 1-8. Claim 7, however, is also a

multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

5. Claim 16 is objected to because of a spelling mistake. “Characrterised” should be characterised. Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1, the terms "good" and “normal” are relative terms which render the claim indefinite. The terms "good" and “normal” are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 2-21 are likewise rejected because of their dependency on Claim 1.

Regarding Claim 2, the claim is rendered indefinite because the term “M(N,C)” is not sufficiently defined in the claim itself and/or specification.

Regarding Claims 3-8, 10-12, and 15, Applicant is reminded that a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP §

2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). Claims 17-21 are likewise rejected because of their dependency on Claim 15.

Regarding Claims 17-21, the claims provide for the use of a steel material, but since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-21 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper

definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1, 3-8, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koga et al. (US 2002/0164260 A1).

Regarding Claims 1 and 3-8, US '260 teaches a corrosion-resistant steel composition comprising the following elements, in percent by weight (US '260, pp. 1-2, para. [0015]):

Carbon	< 0.15

Nitrogen	0.40-0.80
Chromium	12.0-18.5
Manganese	0.10-2.0
Nickel	0.2-3.0
Molybdenum	0.2-4.0
Tungsten	0.020-0.20
Vanadium	0.020-0.20
Niobium	0.020-0.20
Titanium	0.020-0.20
Silicon	0.10-1.0
Cobalt	0.50-4.0
Iron	balance

The overlap of the ranges taught by US '260 with the claimed ranges is sufficient to establish a *prima facie* case of obviousness (MPEP § 2144.05).

Still regarding Claim 1 and concerning sulfur, US '260 is silent as to the sulfur content. However, sulfur is one of the most common impurities in steel. Therefore, even though US '260 fails to explicitly teach sulfur content, at least trace amounts of the element would be expected to be present in the composition disclosed.

Still regarding Claim 1 and concerning the transitional phrase "consists of", the phrase indicates closed language (see MPEP § 2111.03). Although US '260 teaches that other elements may be present (Al and O, p. 2, para. [0015], ln. 4-5), the ranges taught encompass zero. Thus, the elements do not necessarily have to be present and

may be omitted to arrive at the claimed composition. In addition, the additional elemental additives (see US '260, p. 2, para. [0015], ln. 5-16) are also optional, as indicated by the phrase "one or more of." Because each additive imparts well-known specific qualities to the finished steel product, it would have been obvious to one of ordinary skill to use those qualities as a guide in selecting a particular combination of additives, as doing so would lead one to arrive at a steel product with a particular set of desired mechanical properties.

Regarding Claim 10, the alloy taught by US '260 fails to teach a Nb in amounts greater than 0.2 wt.%. However, this upper bound applies only if vanadium, tungsten, titanium, tantalum, and zirconium are also **each** 0.2 wt.% in the alloy (US '260, p. 3, para. [0047]). Therefore, if vanadium, tungsten, titanium, tantalum, and zirconium are present in smaller amounts or are not present at all, niobium may be present in an amount exceeding 0.030 wt.% (US '260, p. 3, para. [0047]). One of ordinary skill in the art would be motivated to increase the amount of niobium above the individually taught range of 0.2 wt.% because it functions as a grain refiner, thereby contributing to the strength of the alloy.

Regarding Claims 15 and 16, Applicant is reminded that in product-by-process claims, patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of the prior art, the claim is unpatentable even though the prior product was made by a different process. (MPEP § 2113)

12. Claims 2, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koga et al. (US 2002/0164260 A1) in view of Goecmen et al. ("Precipitation Behaviour and Stability of Nitrides in High Nitrogen Martensitic 9% and 12% Chromium Steels," *ISIJ International*, Vol. 36, No. 7, pp. 768-776), and further in view of Webster (US 3,563,813).

Regarding Claim 2, US '260 is silent as to the microstructure of the disclosed alloy. However, Goecmen, also drawn to a high-nitrogen martensitic steel alloy, teaches that MN and chromium-rich M_2N type precipitates are formed in the tempered nitrogen martensite of a chromium steel (Goecmen et al., p. 772). Although Goecmen is silent as to a preferred amount of each phase, it would be obvious to one of ordinary skill in the art to determine optimum amounts through routine experimentation to obtain a product with desired properties. (MPEP § 2144.05) Furthermore, it would have been obvious to one of ordinary skill in the art to combine Goecmen with US '260 because the alloys in Goecmen exhibit enhanced mechanical properties.

Still regarding Claim 2 and concerning the hardness limitation, hardness is affected by the size and spacings of nitride particles (Goecmen, Abstract). Thus, it would have been obvious to one of ordinary skill in the art to precipitate a predetermined number of nitride particles to obtain a product with a desired hardness. (MPEP § 2144.05)

Still regarding Claim 2 and concerning the residual austenite limitation, US '260 in view of Goecmen fail to teach residual austenite in the martensite phase. However, US '813, also drawn to a stainless steel, teaches that the presence of austenite

enhances the toughness of brittle martensite (US '813, col. 1, ln. 41-44). A preferable amount of retained austenite is 5% to 30% (US '813, col. 1, ln. 69 to col. 2, ln. 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to ensure that some austenite remained in the tempered martensite alloy of US '260 in view of Goecmen because austenite improves the toughness of martensitic stainless steels (US '813, col. 1, ln. 36-40).

Regarding Claims 11 and 12, Applicant is reminded that in product-by-process claims, patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of the prior art, the claim is unpatentable even though the prior product was made by a different process. (MPEP § 2113)

Still regarding Claim 12 and concerning the hardness limitation, hardness is affected by the size and spacings of nitride particles (Goecmen, Abstract). Thus, it would have been obvious to one of ordinary skill in the art to precipitate a predetermined number of nitride particles to obtain a product with a desired hardness. (MPEP § 2144.05)

13. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koga et al. (US 2002/0164260 A1) in view of Goecmen et al. ("Precipitation Behaviour and Stability of Nitrides in High Nitrogen Martensitic 9% and 12% Chromium Steels," *ISIJ International*, Vol. 36, No. 7, pp. 768-776).

Regarding Claims 13 and 14, US '260 is silent as to the microstructure of the disclosed alloy. However, Goecmen, also drawn to a high-nitrogen martensitic steel alloy, teaches that MN and chromium-rich M_2N type precipitates are formed in the tempered nitrogen martensite of a chromium steel (Goecmen et al., p. 772). Although Goecmen is silent as to the specific elemental constitution of the hard phases (i.e., Cr, Nb, V, Mo, and Fe recited in said claims), the recited elements are well known in the art as carbide- and/or nitride- forming elements. Thus, they would inherently be present in the hard phases. (MPEP § 2112) It would have been obvious to one of ordinary skill in the art to combine Goecmen with US '260 because the alloys in Goecmen exhibit enhanced mechanical properties.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is (571)270-3587. The examiner can normally be reached on Monday-Friday 8:30 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit 1793

/Vanessa Velasquez/
Examiner, Art Unit 1793